

WHAT IS CLAIMED IS:

1 1. A balance (1), comprising a weighing pan (3), a
2 weighing compartment (2) surrounding the weighing pan on all
3 sides, a draft shield (4) enclosing the weighing
4 compartment, and a stationary part, wherein the draft shield
5 has at least one vertical wall (8) formed as a component of
6 the stationary part, wherein at least one thermoelectric
7 module (16) is arranged outside of the weighing compartment
8 (2) near the stationary part in a lower portion of the
9 balance and thermally connected to the stationary part,
10 wherein the at least one vertical wall (8) has a lower end
11 portion in thermal connection with the thermoelectric module
12 (16), and wherein the at least one vertical wall (8) is
13 configured in such a way that a temperature gradient with a
14 bottom-to-top temperature increase develops in said at least
15 one vertical wall (8).

1 2. The balance (1) according to claim 1, wherein
2 the stationary part of the balance has a floor plate (11)
3 extending over the entire length of the balance (1) and
4 consisting of a material with good thermal conductivity,
5 said floor plate (11) being in thermal connection with the
6 at least one thermoelectric module (16).

1 3. The balance (1) according to claim 1, wherein
2 the stationary part includes a measuring cell compartment
3 (9) and a balance housing (10) surrounding the measuring
4 cell compartment, and wherein the at least one vertical wall
5 (8) is configured as a separating wall between the weighing
6 compartment (2) and the measuring cell compartment (9).

1 4. The balance (1) according to claim 3, wherein

2 the measuring cell compartment (9) contains air with a
3 vertical air temperature gradient with a bottom-to-top
4 temperature increase.

1 5. The balance (1) according to claim 1, wherein
2 the weighing compartment (2) at least near the weighing pan
3 (3) contains air with a vertical air temperature gradient
4 with a bottom-to-top temperature increase.

1 6. The balance (1) according to claim 1, wherein
2 respective temperatures in an upper end and a lower end of
3 at least one of the at least one vertical wall (9) and the
4 weighing compartment (2) differ by substantially no more
5 than 1°C.

1 7. The balance (1) according to claim 6, wherein
2 said respective temperatures differ by substantially no more
3 than 0.5°C.

1 8. The balance (1) according to claim 3, wherein
2 respective temperatures in an upper end and a lower end of
3 the measuring cell compartment (9) differ by substantially
4 no more than 1°C.

1 9. The balance (1) according to claim 8, wherein
2 said respective temperatures differ by substantially no more
3 than 0.5°C.

1 10. The balance (1) according to claim 2, wherein
2 the floor plate (11) has a temperature that is no higher
3 than a few tenths of a degree Celsius above ambient
4 temperature, substantially no more than one half degree
Celsius.

1 11. The balance (1) according to claim 10, wherein
2 said temperature is a few tenths of a degree Celsius below
3 ambient temperature, substantially no more than one half
degree Celsius.

1 12. The balance (1) according to claim 2, wherein
2 the at least one thermoelectric module (16) has a hot side
3 and a cold side and is attached to the floor plate (11) with
4 the cold side facing towards the floor plate (11) and the
5 hot side facing towards an outside environment of the
6 balance.

1 13. The balance (1) according to claim 2, further
2 comprising a heat-conducting body (15) connected to the
3 floor plate (11) and the vertical wall (8), wherein the at
4 least one thermoelectric module (16) has a hot side and a
5 cold side and is attached to the heat-conducting body (15)
6 with the cold side facing towards the heat-conducting body
7 (15) and the hot side facing towards an outside environment
8 of the balance.

1 14. The balance (1) according to claim 1, further
2 comprising a heat sink (17) connected to a hot side of the
3 at least one thermoelectric module (16) to provide a rapid
4 heat removal into ambient air.

1 15. The balance (1) according to claim 3, wherein
2 the measuring cell compartment (9) comprises a weighing-cell
3 electronics (20) module arranged in an upper half of the
4 measuring cell compartment (9), so that a heat flow is
5 generated from the weighing cell electronics (20) to the at
6 least one vertical wall (8) and said heat flow enhances the
7 temperature gradient in the stationary vertical wall.

1 16. The balance (1) according to claim 15, wherein
2 said electronics (20) module is arranged in the top third of
3 the measuring cell compartment (9).

1 17. The balance (1) according to claim 1, wherein
2 the at least one vertical wall (8) has a material thickness
3 that decreases in the bottom-to-top direction.

1 18. The balance (1) according to claim 1, further
2 comprising an indicating- and operating unit (13) which can
3 be brought into thermal contact with the floor plate (11) to
4 remove heat caused by power dissipation of the indicating-
5 and operating unit (13).

1 19. The balance (1) according to claim 1, wherein
2 the draft shield (4) comprises a front wall (5) with a
3 metallic frame that is connected to the floor plate (11).